



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
ASSISTANT SECRETARY AND COMMISSIONER OF  
PATENTS AND TRADEMARKS  
Washington, D.C. 20231

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 48

Application Number: 08/897,953  
Filing Date: 7-24-1997  
Appellant(s): Kira et al.

**MAILED**  
JAN 09 2001  
**GROUP 2200**

William L. Brooks  
For Appellant

**EXAMINER'S ANSWER**

This is in response to appellant's brief on appeal filed 7-31-2000.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

Art Unit: 2814

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct. It is further noted that, although not expressly indicated in the record, claims 9 and 10 are withdrawn from consideration as being drawn to a nonelected invention in paper No. 33, mailed 3-25-1999.

**(4) *Status of Amendments After Final***

Appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

Appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

The rejection of claims 3, 5, 6, 8 and 15-17 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

Art Unit: 2814

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

58-180091	MAEDA	10-1983
4-302444	KOGA	10-1992
5,548,091	DISTEFANO et al.	8-1996
5,115,545	FUJIMOTO et al.	5-1992

**(10) *Grounds of Rejection***

The following grounds of rejection are applicable to the appealed claims:

Claims 3, 5, 6, 8 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda (English translation, JP58-180091), and Koga (JP4302444).

At page 1, line 23 to page 2, line 22, appellant teaches as conventional a process comprising the steps of forming leveled projection electrode studs 14 on a semiconductor chip 11 by wire-bonding; forming conductive adhesive 16a on the electrodes by a conductive adhesive 16 that has been skidded on a plate 15a and then transcribed onto the electrodes; applying a thermosetting insulating adhesive 18 to areas of mounting parts where the chip is to be mounted on a substrate 17; aligning the chip to the mounting parts at a first stage and performing a first

Art Unit: 2814

fixing of the chips with a first pressure by a bonding head to which the chip is absorbed; and thereafter, heating the substrate on which the chip is fixed with a thermosetting temperature of the adhesive.

However, appellant does not appear to explicitly teach as conventional a process comprising a plurality of chips, and the steps of heating the adhesive on the substrate with a half-thermosetting temperature so as to harden the adhesive on the substrate to a half-thermosetting state by heating means; moving the substrate to a second stage, while the chips on the substrate are held at their position by the half-thermosetting state of the adhesive; and thereafter, heating at the second stage the substrate on which the chips are fixed. Nonetheless, Maeda teaches this process at page 2, lines 19-20; page 3, line 22 to page 4, last line; page 6, antepenultimate paragraph to page 8, line 3; and page 9, first full paragraph. Moreover, it would have been obvious to combine the process of Maeda with the process of appellant's admitted prior art because it would enable accurate alignment of plural chips before the final fixing step of the conventional art.

Further, the combination of appellant's admitted prior art and Maeda does not appear to explicitly teach a process comprising wherein a second fixing is simultaneously performed for each of the chips with a second pressure, and wherein in the heating step (e) while heating the adhesive on the mounting parts a pressure is applied to the chips. Nevertheless, in the English abstract and figures, Koga teaches a process comprising wherein a second fixing is simultaneously performed for each of plural chips with a second pressure, and wherein in a heating step while

Art Unit: 2814

heating an adhesive on mounting parts a pressure is applied to the chips. Furthermore, it would have been obvious to combine the process of Koga with the process of the applied prior art because it would facilitate bonding.

Also, the combination of applied prior art does not appear to explicitly teach a process wherein the second pressure is greater than the first pressure. In any case, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative pressure because appellant has not disclosed that the limitation is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical, and it appears prima facie that the process would possess utility using another relative pressure. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical.

Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda and Koga, as applied to claims 3, 5, 6, 8 and 15, and further in combination with DiStefano (5548091).

The combination of appellant's admitted prior art, Maeda and Koga does not appear to explicitly teach a process comprising wherein, in the heating step (c), heating the adhesive is performed by a heat plate on which the substrate is placed. Regardless, at column 9, lines 3-63, DiStefano teaches a process comprising wherein in a heating step, heating an adhesive is

Art Unit: 2814

performed by a heat plate 58 on which a substrate mounting chips is placed. In addition, it would have been obvious to combine the process of DiStefano with the process of the applied prior art because, both processes are directed to the same purpose of heating an adhesive, and it would facilitate adhesive curing.

Claim 17 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda and Koga as applied to claims 3, 5, 6, 8 and 15, and further in combination with Fujimoto (5115545).

The combination of appellant's admitted prior art, Maeda and Koga does not appear to explicitly teach a process comprising a heat block having a plurality of pressing/heating heads each of which is provided on the heat block corresponding to the mounting parts of the substrate. Nonetheless, as cited, Koga teaches a process comprising a heat block 25 having a plurality of pressing/heating portions each of which is provided on the heat block corresponding to the mounting parts of the substrate. Further, at column 6, line 52 to column 7, line 3, Fujimoto teaches a single bonding head 52 for each chip. Moreover, it would have been obvious to combine the process of Fujimoto and the process of Koga by providing the heat block 25 with a single head for each chip because it would enable a pressing force to act evenly on each chip. Furthermore, it would have been obvious to combine the heat block of the combination of Fujimoto and Koga with the applied prior art because it would facilitate bonding.

Art Unit: 2814

**(11) Response to Argument**

Appellant argues that it would not have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative pressure because "such a claimed relation between the first and second pressure would require undue experimentation to produce." This argument is respectfully deemed to be unpersuasive because it is a vague and general statement in broad terms unsupported by proof or a showing of facts; hence, it essentially amounts to mere conjecture. Ex parte George, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991) (conclusory statements that results were "unexpected," unsupported by objective factual evidence, were considered but were not found to be of substantial evidentiary value); Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989) (statement in publication dismissing the "preliminary identification of a human b - NGF - like molecule" in the prior art, even if considered to be an expert opinion, was inadequate to overcome the rejection based on that prior art because there was no factual evidence supporting the statement); In re Beattie, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992) (declarations of seven persons skilled in the art offering opinion evidence praising the merits of the claimed invention were found to have little value because of a lack of factual support).

Also, appellant alleges that "DiStefano is not combinable with Maeda to teach the present invention because, while DiStefano discloses conductive heating, which requires pressure, Maeda specifically discloses radiative heating without pressure." This contention is

Art Unit: 2814

respectfully deemed to be unpersuasive because the alleged processes of DiStefano and Maeda would not be mutually exclusive, and appellant has not presented evidence otherwise.

In addition, appellant contends that Fujimoto teaches away from the claimed heating steps because Fujimoto teaches a process "without the need for using heat." However, this argument is respectfully traversed because, although Fujimoto teaches that the process "eliminates the necessity of using heat," Fujimoto does not teach that heating must be excluded; hence, heating remains an option. Indeed, disclosed examples do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." In re Gurley, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994).



Application/Control Number: 08897953

Page 8

Art Unit: 2814


For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

David E. Graybill

Conferees:

DG  
January 2, 2001

  
Olik Chaudhuri  
Supervisory Patent Examiner  
Technology Center 2800

  
Tom Thomas



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
ASSISTANT SECRETARY AND COMMISSIONER OF  
PATENTS AND TRADEMARKS  
Washington, D.C. 20231

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 47

Application Number: 08/897,953  
Filing Date: 7-24-1997  
Appellant(s): Kira et al.

William L. Brooks  
For Appellant

**EXAMINER'S ANSWER**

This is in response to appellant's brief on appeal filed 7-31-2000.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

Art Unit: 2814

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct. It is further noted that, although not expressly indicated in the record, claims 9 and 10 are withdrawn from consideration as being drawn to a nonelected invention in paper No. 33, mailed 3-25-1999.

**(4) *Status of Amendments After Final***

Appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

Appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

The rejection of claims 3, 5, 6, 8 and 15-17 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

Art Unit: 2814

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

58-180091	MAEDA	10-1983
4-302444	KOGA	10-1992
5,548,091	DISTEFANO et al.	8-1996
5,115,545	FUJIMOTO et al.	5-1992

**(10) *Grounds of Rejection***

The following grounds of rejection are applicable to the appealed claims:

Claims 3, 5, 6, 8 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda (English translation, JP58-180091), and Koga (JP4302444).

At page 1, line 23 to page 2, line 22, appellant teaches as conventional a process comprising the steps of forming leveled projection electrode studs 14 on a semiconductor chip 11 by wire-bonding; forming conductive adhesive 16a on the electrodes by a conductive adhesive 16 that has been skidded on a plate 15a and then transcribed onto the electrodes; applying a thermosetting insulating adhesive 18 to areas of mounting parts where the chip is to be mounted on a substrate 17; aligning the chip to the mounting parts at a first stage and performing a first

Art Unit: 2814

fixing of the chips with a first pressure by a bonding head to which the chip is absorbed; and thereafter, heating the substrate on which the chip is fixed with a thermosetting temperature of the adhesive.

However, appellant does not appear to explicitly teach as conventional a process comprising a plurality of chips, and the steps of heating the adhesive on the substrate with a half-thermosetting temperature so as to harden the adhesive on the substrate to a half-thermosetting state by heating means; moving the substrate to a second stage, while the chips on the substrate are held at their position by the half-thermosetting state of the adhesive; and thereafter, heating at the second stage the substrate on which the chips are fixed. Nonetheless, Maeda teaches this process at page 2, lines 19-20; page 3, line 22 to page 4, last line; page 6, antepenultimate paragraph to page 8, line 3; and page 9, first full paragraph. Moreover, it would have been obvious to combine the process of Maeda with the process of appellant's admitted prior art because it would enable accurate alignment of plural chips before the final fixing step of the conventional art.

Further, the combination of appellant's admitted prior art and Maeda does not appear to explicitly teach a process comprising wherein a second fixing is simultaneously performed for each of the chips with a second pressure, and wherein in the heating step (e) while heating the adhesive on the mounting parts a pressure is applied to the chips. Nevertheless, in the English abstract and figures, Koga teaches a process comprising wherein a second fixing is simultaneously performed for each of plural chips with a second pressure, and wherein in a heating step while

Art Unit: 2814

heating an adhesive on mounting parts a pressure is applied to the chips. Furthermore, it would have been obvious to combine the process of Koga with the process of the applied prior art because it would facilitate bonding.

Also, the combination of applied prior art does not appear to explicitly teach a process wherein the second pressure is greater than the first pressure. In any case, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative pressure because appellant has not disclosed that the limitation is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical, and it appears prima facie that the process would possess utility using another relative pressure. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical.

Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda and Koga, as applied to claims 3, 5, 6, 8 and 15, and further in combination with DiStefano (5548091).

The combination of appellant's admitted prior art, Maeda and Koga does not appear to explicitly teach a process comprising wherein, in the heating step (c), heating the adhesive is performed by a heat plate on which the substrate is placed. Regardless, at column 9, lines 3-63, DiStefano teaches a process comprising wherein in a heating step, heating an adhesive is

Art Unit: 2814

performed by a heat plate 58 on which a substrate mounting chips is placed. In addition, it would have been obvious to combine the process of DiStefano with the process of the applied prior art because, both processes are directed to the same purpose of heating an adhesive, and it would facilitate adhesive curing.

Claim 17 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda and Koga as applied to claims 3, 5, 6, 8 and 15, and further in combination with Fujimoto (5115545).

The combination of appellant's admitted prior art, Maeda and Koga does not appear to explicitly teach a process comprising a heat block having a plurality of pressing/heating heads each of which is provided on the heat block corresponding to the mounting parts of the substrate. Nonetheless, as cited, Koga teaches a process comprising a heat block 25 having a plurality of pressing/heating portions each of which is provided on the heat block corresponding to the mounting parts of the substrate. Further, at column 6, line 52 to column 7, line 3, Fujimoto teaches a single bonding head 52 for each chip. Moreover, it would have been obvious to combine the process of Fujimoto and the process of Koga by providing the heat block 25 with a single head for each chip because it would enable a pressing force to act evenly on each chip. Furthermore, it would have been obvious to combine the heat block of the combination of Fujimoto and Koga with the applied prior art because it would facilitate bonding.

Art Unit: 2814

**(11) Response to Argument**

Appellant argues that it would not have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative pressure because "such a claimed relation between the first and second pressure would require undue experimentation to produce." This argument is respectfully deemed to be unpersuasive because it is a vague and general statement in broad terms unsupported by proof or a showing of facts; hence, it essentially amounts to mere conjecture. Ex parte George, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991) (conclusory statements that results were "unexpected," unsupported by objective factual evidence, were considered but were not found to be of substantial evidentiary value); Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989) (statement in publication dismissing the "preliminary identification of a human b - NGF - like molecule" in the prior art, even if considered to be an expert opinion, was inadequate to overcome the rejection based on that prior art because there was no factual evidence supporting the statement); In re Beattie, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992) (declarations of seven persons skilled in the art offering opinion evidence praising the merits of the claimed invention were found to have little value because of a lack of factual support).

Also, appellant alleges that "DiStefano is not combinable with Maeda to teach the present invention because, while DiStefano discloses conductive heating, which requires pressure, Maeda specifically discloses radiative heating without pressure." This contention is



Art Unit: 2814

respectfully deemed to be unpersuasive because the alleged processes of DiStefano and Maeda would not be mutually exclusive, and appellant has not presented evidence otherwise.

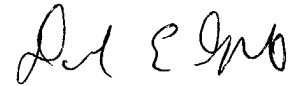
In addition, appellant contends that Fujimoto teaches away from the claimed heating steps because Fujimoto teaches a process "without the need for using heat." However, this argument is respectfully traversed because, although Fujimoto teaches that the process "eliminates the necessity of using heat," Fujimoto does not teach that heating must be excluded; hence, heating remains an option. Indeed, disclosed examples do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." In re Gurley , 31 USPQ2d 1130, 1132 (Fed. Cir. 1994).

Application/Control Number: 08897953

Page 8

Art Unit: 2814

For the above reasons, it is believed that the rejections should be sustained.



Respectfully submitted,

DAVID E. GRAYBILL

DG  
August 17, 2000